# SCIENCE ABSTRACTS

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## SECTION A.—PHYSICS

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# *ERRATA.*

## SECTION A.—PHYSICS.

Abstract No. 457, line 2 ; *for* G. Stora, *read* C. Stora.
Abstract Nos. 618, 646, 718, 729, 754, 772, 813, 814, 815 ; *for* Feb. 15, *read* Feb. 21.
Abstract No. 670, line 5 ; *for* I, *read* $\phi$.
Abstract No. 672, line 3 ; *for* light, *read* bright.
Abstract No. 1106, line 2 ; *for* Proc., *read* Reports.
Abstract No. 1636, line 1 ; *for* mixed solvents on, *read* mixed solvents. Ion.
Abstract No. 2313, line 1 ; *for* I. Schewe, *read* J. Schewe.
Abstract No. 2656, line 6 ; *for* anastigmatism, *read* astigmatism.
Abstract No. 2860, line 2 ; *for* " light compress ", *read* " light compasses ".

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# KEY

## TO

# SUBJECT INDEX.

The Domain of Physics is divided into eight Main Classes (*e.g.*, **GENERAL PHYSICS**). Each of these Classes is, in general, divided into a number of Sections, the titles of which are known as Key-headings (*e.g.*, **Elasticity and Plasticity**), and these Sections are in turn divided into Sub-sections under titles known as Sub-headings (*e.g.*, " Photo-elasticity "). The Key-headings are given below arranged in alphabetical order in their Classes, and the scheme of Sub-headings adopted is indicated in the remainder of the Key.

In the Subject Index these Key-headings are arranged in alphabetical order throughout the whole Index.

The general form of entry of a paper consists of its Title, the Author's Name and the Abstract Number assigned to the paper, the sequence of the entries under any Sub-Heading being the order of publication of the Abstracts as indicated by their Abstract Numbers.

Papers on **Apparatus and Instruments** are classified, in alphabetical order, in a **Supplementary Index** which immediately follows the SUBJECT INDEX.

## GENERAL PHYSICS.

**Adsorption (See Surface Properties).**
**Atomic and Molecular Structure.**
**Colloids.**
**Crystal Structure and Special Properties.**
**Density.**
**Diffusion and Osmosis.**
**Elasticity and Plasticity.**
**Gravitation.**
**Hydrodynamics and Aerodynamics.**
**Kinetic Theory of Matter.**
**Length, Area and Volume.**
**Mass.**
**Mathematical Methods and Theory of Measurements.**
**Mechanics, Classical.**
**Mechanics, Quantum.**
**Philosophy of Scientific Method.**
**Pressure.**
**Relativity and Ether.**
**Solution.**
**Surface Properties.**
**Time.**
**Viscosity and Friction.**

## ASTRONOMY AND ASTROPHYSICS

**Astronomical Apparatus and Observatory Equipment.**
**Comets and Meteors.**
**Cosmogony.**
**Dynamical Problems (Astronomical).**
**Latitude and Longitude.**
**Nebulæ.**
**Planets.**
**Stars.**
**Sun.**
**Zodiacal Light and Gegenschein.**

## GEOPHYSICS.

Geodesy.
Geophysics, Applied.
Hydrosphere, Physics of the.
Land, Physics of the.
Meteorology.
Seismology.
Terrestrial Electricity and Magnetism.

## RADIOACTIVITY.

All Abstracts relating to this subject are indexed under Radioactivity.

## RADIATION.

Absorption.
Colorimetry.
Electro-optical and Magneto-optical Effects.
Emission.
Fluorescence and Phosphorescence. Luminescence and Afterglow.
Interference, Diffraction and Scattering.
Photochemistry (including Photography).
Photometry.
Polarization.
Reflection, Refraction and Dispersion.
Spectroscopy.
Transmission.
Vision.
X-rays.

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## HEAT.

Calorimetry.
Conduction.
Convection.
Dilatation.
Fusion and Solidification.
Temperature.
Thermochemistry.
Thermodynamics.
Vaporization and Condensation.

## ACOUSTICS.

All Abstracts relating to this subject are indexed under Acoustics.

## ELECTRICITY AND MAGNETISM.

Alternating-current Networks.
Conduction and Discharge in Gases.
Conduction in Solids and Liquids.
Dielectrics and Capacitance.
Electrochemistry.
Electrons, Neutrons, Positrons and Protons.
Electrostatics.
Galvanomagnetic and Thermomagnetic Effects.
Magnetism and Electromagnetism.
Medical Radiology and Electrology.
Oscillations and Waves.
Photo-electricity.
Piezo-electricity.
Thermionics.
Thermo-electricity.

# KEY-HEADINGS WITH SUB-HEADINGS.

### Absorption (Radiation). Page 827.

1. Visible Region.
2. Infra-red Region.
3. Ultra-violet Region.
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

*Cross-References :*
Absorption Spectra, *see* Spectroscopy.
Cosmic Rays, *see* Emission (Radiation).
Diathermancy, *see* Transmission (Radiation).
Dichroism, *see* Polarization (Radiation).
Electric Waves, *see* Oscillations and Waves, Electric.
$\gamma$-rays, *see* Radioactivity.
Meteorological Optics, *see* Meteorology.
Visibility, *see* Meteorology, *also* Vision.
X-ray Absorption, *see* X-rays.

### Acoustics. Page 827.

1. Theory of Waves and Vibrations.
2. Plates, Rods and Membranes.
3. Vibrating Columns of Air or other Gases.
4. Strings.
5. Velocity, Measurement of.
6. Propagation in the Atmosphere.
7. Supersonic Vibrations.
8. Architectural Acoustics.
9. Receivers and Reproducers.
10. Speech and Hearing. Noise.
11. Measurements of Absorption, Amplitude, Intensity, Frequency, Wave-form, Radiation Pressure.
12. Apparatus, *see* Supplementary Index.
13. Unclassified.

*Cross References :*
Architectural Acoustics, Noise, Receivers and Reproducers, *see also* Section B.—Electrical Engineering.

### Adsorption.

(*see* Surface Properties.)

### Alternating-current Networks. Page 831.

1. Circuit Theory.
2. A.C. Bridges, Applications of.
3. H.F. Measurements (*see also* Dielectrics and Capacitance).
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

*Cross-Reference :*
Frequency, *see also* Oscillations and Waves, Electric.

### Astronomical Apparatus and Observatory Equipment.

(*see* Supplementary Index.)

### Atomic and Molecular Structure. Page 832.

1. Nuclear Constitution (*see also* Electrons, etc., *and* Radioactivity).
2. Isotopes and Isobares.
3. Periodic System.
4. Valency.
5. Molecular Structure (*see also* Spectroscopy).
6. Allotropy.
7. Association.
8. Atomic and Molecular Magnitudes.
9. Apparatus, *see* Supplementary Index.
10. Unclassified.

*Cross-References :*
Artificial Disintegration, *see* Radioactivity.
Atomic and Molecular Rays, *see* Kinetic Theory of Matter.
Atomic and Molecular States and Vibrations, *see* Spectroscopy.
Critical Potentials, *see* Conduction (Electric) and Discharge in Gases.
Dipole Moments and Molecular Polarization, *see* Dielectrics and Capacitance.
Liquid Structure, *see* Crystal Structure and Special Properties.
Nuclear Moments, *see* Spectroscopy.

### Calorimetry. Page 837.

1. Specific Heat:
    (*a*) Gases.
    (*b*) Liquids.
    (*c*) Solids.
2. Latent Heat :
    (*a*) Fusion.
    (*b*) Evaporation.
3. Apparatus, *see* Supplementary Index.
4. Unclassified.

*Cross-References :*
Heat of Adsorption, *see* Surface Properties.
Heat of Combustion, Formation, Dissociation, Solution and Dilution, *see* Thermochemistry.
Thermodynamics of Specific Heat and Latent Heat, *see* Thermodynamics.

### Colloids. Page 838.

1. Theory.
2. Sols :
   (*a*) Formation and Composition.
   (*b*) Optical Properties.
   (*c*) Viscosity and Mechanical Properties.
3. Gels :
   (*a*) Formation and Composition.
   (*b*) Optical Properties.
   (*c*) Viscosity and Mechanical Properties.
   (*d*) Swelling, Shrinking, Synæresis.
   (*e*) Membranes.
4. Fibres.
5. Emulsions and Suspensions.
6. Electrical Properties (Coagulation, Cataphoresis, Electro-osmosis, etc.).
7. Structure.
8. Apparatus, *see* Supplementary Index.
9. Unclassified.

*Cross-References :*
Brownian Motion, *see* Kinetic Theory of Matter.
Surface Phenomena, *see* Surface Properties.

### Colorimetry. Page 841.

1. Theory.
2. Apparatus, *see* Supplementary Index.
3. Unclassified.

*Cross-Reference :*
*See also* Vision.

### Comets and Meteors. Page 842.

1. Comets.
2. Meteors.

### Conduction (Electric) and Discharge in Gases. Page 843.

1. Theory.
2. Conduction at Higher Pressures (Order of one Atmosphere).
   Spark and Arc. Mobility of Ions. Recombination of Ions.
3. Low-pressure Discharge. Dark Space. Cathode Fall of Potential. Negative Glow. Positive Column. Electrodeless Discharge.
4. Ionization by Electron Impact. Critical Potentials.
5. Ionization by Collision with Atoms and Ions.
6. Ionization by Chemical Action.
7. Positive Rays (Canal Rays). Anode Rays.
8. Chemical Effects of Discharge.
9. Apparatus, *see* Supplementary Index.
10. Unclassified.

*Cross-References :*
Auto-electronic Emission, *see* Thermionics.
Diffraction, Scattering, Reflection, etc., of Electrons; Electron Optics; Cathode-ray Oscillographs ; Secondary Emission; *see* Electrons, etc.
Luminous Effects, *see* Spectroscopy.

### Conduction (Electric) in Solids and Liquids. Page 845.

1. Theories.
2. Voltage Measurement.
3. Current Measurement.
4. Resistance Measurement.
5. Current and Voltage Stabilization and Amplification.
6. A.C. Resistance. Skin Effect.
7. Effects of Temperature, Pressure and Mechanical Stress on Resistivity.
8. Surface Conduction. Contact Resistance (including Contact Rectifiers).
9. Special Effects (Super-conductivity, etc.).
10. Conductivity.
    (*a*) Metals, Alloys and Non-Metals.
    (*b*) Liquids (including Solutions).
    (*c*) Dielectrics.
11. Apparatus, *see* Supplementary Index.
12. Unclassified.

*Cross-References :*
Effect of Magnetic Field on Resistance, *see* Galvanomagnetic and Thermomagnetic Effects.
Heating Effect of Current, *see* Thermo-electricity.
Photoconductivity, *see* Photoelectricity.
Rectifiers (other than Contact) and Rectification, *see* Oscillations, Electric.
Units of Measurement, *see* Mathematical Methods, etc.

### Conduction (Thermal). Page 847.

1. Theory.
2. Conductivity Coefficients :
   (*a*) Gases.
   (*b*) Liquids.
   (*c*) Solids.
3. Apparatus, *see* Supplementary Index
4. Unclassified.

### Convection. Page 848.

1. Free Convection.
2. Forced Convection.
3. Emissivity and Rate of Cooling (including Loss of Heat by Radiation, Conduction and Convection).
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

### Cosmogony. Page 848.

Cosmic Radiation, *see* Emission (Radiation).

### Crystal Structure and Special Properties. Page 849.

1. General Theory.
2. Crystal Structure :
   (*a*) Metals and Alloys.
   (*b*) Inorganic.
   (*c*) Organic.
   (*d*) Biological.
3. Liquid Crystals and Liquid Structure.
4. Morphology of Crystals (Crystal Form, Habit, Growth).
5. Special Properties.
6. Apparatus, *see* Supplementary Index.
7. Unclassified.

*Cross-References :*
Colloid Structure, *see* Colloids.
Surface Structure, *see* Surface Properties.

### Density. Page 853.

1. Density of Gases and Vapours.
2. Density of Liquids.
3. Density of Solids.
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

### Dielectrics and Capacitance. Page 854.

1. Theory.
2. Dielectric Constants and Electric (Dipole) Moments :
   (*a*) Gases.
   (*b*) Liquids and Colloids.
   (*c*) Solids.
3. Effects of Electric and Magnetic Fields.
4. Effect of Frequency.
5. Effects of Mechanical Stress, Temperature and Moisture.
6. Dielectric Loss.
7. Capacitance and its Measurement.
8. H.F. Measurements (*see also* Alternating-current Networks).
9. Apparatus, *see* Supplementary Index.
10. Unclassified.

*Cross-References :*
Conduction, Electrical, in Dielectrics, *see* Conduction (Electric) in Solids and Liquids.
Electric Breakdown, *see also* Section B.—Electrical Engineering.

### Diffusion and Osmosis. Page 857.

1. Diffusion (General).
2. Osmosis.
3. Membrane Equilibria.
4. Porosity.
5. Apparatus, *see* Supplementary Index.
6. Unclassified.

*Cross-Reference :*
Electro-osmosis, *see* Colloids.

### Dilatation. Page 858.

1. Expansion Coefficients:
   (*a*) Gases.
   (*b*) Liquids.
   (*c*) Solids.
2. Apparatus, *see* Supplementary Index.
3. Unclassified.

### Dynamical Problems (Astronomical). Page 859.

### Elasticity and Plasticity. Page 860.

1. Theory.
2. Elastic Coefficients.
3. Plasticity.
4. Photo-elasticity.
5. Vibrations and Waves.
6. Strength and Failure Tests.
7. Apparatus, *see* Supplementary Index.
8. Unclassified

*Cross-References :*
Acoustic Vibrations, *see* Acoustics.
Elastic Properties of Colloids, *see* Colloids.
Piezo-electric Oscillations, *see* Piezo-electricity.
P.V.T. Relations, *see* Thermodynamics.
Seismic Effects, *see* Seismology.

### Electrochemistry. Page 862.

1. Primary and Secondary Cells.
2. Concentration Cells.
3. Electrolysis.
4. Ionic Mobilities and Transport Numbers.
5. Electrode Potentials and Electrode Phenomena.
6. Apparatus, *see* Supplementary Index.
7. Unclassified.

*Cross-References :*
Becquerel Effect, *see* Photo-electricity.

*Cross-References (contd.) :*
Conductivity of Electrolytes, *see* Conduction (Electric) in Solids and Liquids.
Electrocapillary Phenomena, *see* Surface Properties.
Electrokinetic Phenomena, *see* Colloids.
Photovoltaic Cells, *see* Photo-electricity.
Theories of Solution, *see* Solution.
Thermodynamics of Cells, *see* Thermodynamics.

### Electro-optical and Magneto-optical Effects. Page 864.

1. Double Refraction in Electric or Magnetic Fields.
2. Magnetic Rotation of Plane of Polarization.
3. Apparatus, *see* Supplementary Index.
4. Unclassified.

*Cross-References :*
Photophoresis, *see* Emission (Radiation).
Stark Effect, *see* Spectroscopy.
Zeeman Effect, *see* Spectroscopy.

### Electrons, Neutrons, Positrons and Protons. Page 865.

1. Constitution.
2. Magnitudes (Charge, Mass, Magnetic Moments, etc.).
3. Collision : Diffraction, Scattering, Reflection, Absorption, Polarization, Secondary Emission.
4. Diffusion.
5. Electron Optics.
6. Cathode-ray Oscillographs, Applications of.
7. Apparatus, *see* Supplementary Index.
8. Unclassified.

*Cross-References :*
Conduction of Electricity in Metals, *see* Conduction (Electric) in Solids and Liquids.
Structure Determination by Electron Diffraction, *see* Atomic and Molecular Structure; Crystal Structure, etc.; *and* Surface Properties.
*See also* Atomic and Molecular Structure, *also* Radioactivity.

### Electrostatics. Page 870.

1. Theory.
2. Frictional Electricity.
3. Contact Potential.
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

*Cross-References :*
Capacitance, *see* Dielectrics and Capacitance.
Dielectric Constants, *see* Dielectrics and Capacitance.
Units, *see* Mathematical Methods, etc.

### Emission (Radiation). Page 870.

1. General Theory (*see also* Mechanics, Quantum).
2. Black-body Radiation. Total Intensity and Spectral Distribution (Theoretical and Experimental).
3. Selective Radiation.
4. Cosmic Rays.
5. Mechanical Effects (Photophoresis, etc.).
6. Apparatus, *see* Supplementary Index.
7. Unclassified.

*Cross-References :*
Electric Waves, *see* Oscillations and Waves, Electric.

*Cross-References (contd.) :*
Emissivity and Rate of Cooling by Combined Convection, Conduction and Radiation, *see* Convection of Heat.
$\gamma$-rays, *see* Radioactivity.
Solar Radiation, *see* Meteorology.
Therapeutic Effects, *see* Medical Radiology and Electrology.
Velocity of Propagation, *see* Transmission (Radiation).
X-rays, *see under.*

### Fluorescence and Phosphorescence. Luminescence and Afterglow. Page 878.

1. Fluorescence.
2. Phosphorescence.
3. Luminescence and Afterglow.
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

*Cross-References :*
Fluorescence and Phosphorescence Spectra, *see* Spectroscopy.

### Fusion and Solidification. Page 874.

1. Melting Points.
2. Liquefaction and Solidification.
3. Apparatus, *see* Supplementary Index.
4. Unclassified.

*Cross-References:*
Latent Heat, *see* Calorimetry.
Standard Fixed Points, *see* Temperature.
Thermodynamic Theory, *see* Thermodynamics.

### Galvanomagnetic and Thermomagnetic Effects. Page 875.

1. Galvanomagnetic Effects:
   (*a*) Hall and Corbino Effects.
   (*b*) Ettingshausen Effect.
   (*c*) Change of Resistance in Magnetic Field.
2. Thermomagnetic Effects:
   (*a*) Nernst Effect.
   (*b*) Leduc Effect.
3. Apparatus, *see* Supplementary Index.
4. Unclassified.

### Geodesy. Page 875.

1. Theory.
2. Measurements.
3. Apparatus, *see* Supplementary Index.
4. Unclassified.

*Cross-References:*
Isostasy, *see* Gravitation.
*See also* Latitude and Longitude.

### Geophysics, Applied. Page 875.

1. Surveying and Prospecting:
   (*a*) Electrical Methods.
   (*b*) Gravitational Methods.
   (*c*) Magnetic Methods.
1. Surveying and Prospecting (*contd.*):
   (*d*) Seismic Methods.
2. Apparatus, *see* Supplementary Index.
3. Unclassified.

### Gravitation. Page 876.

1. General.
2. Terrestrial Gravity.
3. Value of "G."
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

*Cross-References:*
Gravitational Prospecting, *see* Geophysics, Applied.
Pendulums, *see also* Mechanics, Classical.

### Hydrodynamics and Aerodynamics. Page 876.

1. Aerodynamical Theory.
2. Hydrodynamical Theory.
3. Measurement of Fluid Flow.
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

### Hydrosphere, Physics of the. Page 878.

1. Thermal Data.
2. Optical Data.
3. Ocean Tides and Currents.
4. Inland Lakes. Rivers.
5. Apparatus, *see* Supplementary Index.
6. Unclassified.

### Interference, Diffraction and Scattering (Radiation). Page 879.

1. Interference Effects.
2. Interference, Applicatio[illegible]
3. Diffraction.
4. Scattering.
5. Apparatus, *see* Supplementary Index.
6. Unclassified.

*Cross-References:*
Compton Effect, *see* X-rays.
Electric Waves, *see* Oscillations and Waves, Electric.
Meteorological Optics (Corona, Halo, etc.), *see* Meteorology.
Raman Effect, *see* Spectroscopy.

### Kinetic Theory of Matter. Page 880.

1. Theory:
   (*a*) Gases.
   (*b*) Liquids.
   (*c*) Solids.
2. Radiometer Effect.
3. Atomic and Molecular Rays.
4. Brownian Motion.
5. Apparatus, *see* Supplementary Index.
6. Unclassified.

*Cross-References:*
Photophoresis, *see* Emission (Radiation).
P.V.T. Relations, *see* Thermodynamics.

## Land, Physics of the. Page 881.

1. Earth's Interior.
2. Thermal Phenomena.
3. Physical Properties of Rocks.
4. Soil Physics.
5. Earth Tides.
6. Apparatus, *see* Supplementary Index.
7. Unclassified.

*Cross-References :*
Isostasy, *see* Gravitation.
Lakes, Rivers, Seiches, *see* Hydrosphere, Physics of the.

## Latitude and Longitude. Page 882.

*See also* Geodesy.

## Length, Area and Volume. Page 883.

1. Standards.
2. Measurements.
3. Apparatus, *see* Supplementary Index.
4. Unclassified.

*Cross-Reference :*
Units, *see* Mathematical Methods, etc.

## Magnetism and Electromagnetism. Page 883.

1. Theory.
2. Ferromagnetism.
3. Diamagnetism and Paramagnetism.
4. Electromagnetic Field and Electrodynamics.
5. Electromagnetic Induction. Inductance.
6. Magneto-mechanical Effects (Gyromagnetic Effect and Magnetostriction).
7. Apparatus, *see* Supplementary Index.
8. Unclassified.

*Cross-References :*
Current, Voltage and Resistance Measurement, *see* Conduction (Electric) in Solids and Liquids.

*Cross-References (contd.):*
Earth's Magnetism, *see* Terrestrial Electricity and Magnetism.
Effect of Magnetic Field on Resistance, *see* Galvanomagnetic and Thermomagnetic Effects.
Inductive Networks, *see* Alternating-Current Networks.
Skin Effect, *see* Conduction (Electric) in Solids and Liquids.
Units, *see* Mathematical Methods, etc.

## Mass. Page 885.

1. Standards.
2. Measurements.
3. Apparatus, *see* Supplementary Index.
4. Unclassified.

*Cross-Reference :*
Units, *see* Mathematical Methods, etc.

## Mathematical Methods and Theory of Measurements. Page 886.

1. Mathematical Methods.
2. Theory of Measurements, Probability and Errors.
3. Units and Dimensions.
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

## Mechanics, Classical. Page 887.

1. Statics.
2. Dynamics.
3. Statistical Mechanics (Classical).
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

*Cross-References :*
Acceleration due to Gravity, *see* Gravitation.

*Cross-References (contd.) :*
Astronomical Dynamics, *see* Dynamical Problems (Astronomical).
Elastic Vibrations, *see* Elasticity and Plasticity, *and* Acoustics.
Hydrodynamics and Aerodynamics, *see under.*
Kinetic Theory, *see* Kinetic Theory of Matter.

### Mechanics, Quantum. Page 887.

1. Matrix(orSymbolic)andWaveMechanics.
2. Statistical Mechanics (Quantum).
3. Experimental Determination of "*h*."
4. Unclassified.

*Cross-Reference :*
Special Applications, *see* appropriate Key Headings.

### Medical Radiology and Electrology. Page 889.

1. Electrobiology.
2. Electrotherapy.
3. Radiography.
4. Radiotherapy :
    (*a*) Infra-red Rays.
    (*b*) Ultra-violet Rays.
    (*c*) X-rays.
    (*d*) Radioactive Radiations.
5. Apparatus, *see* Supplementary Index.
6. Unclassified.

*Cross-References :*
Industrial Radiography, *see* X-rays.
*See also* Section B.—Electrical Engineering.

### Meteorology. Page 892.

1. Constitution of the Atmosphere at Various Levels. The Ozone Layer.
2. Temperature and Radiation.
3. Dynamical Meteorology (Pressure, Wind, Turbulence, Weather Maps and Forecasting).
4. Rain, Snow, Hail, Dew, Cloud, Fog, Moisture, Dust.
5. Climatology.
6. Optical Phenomena (Aurora, Night Sky, Visibility, Corona, Halo, etc.).
7. Apparatus, *see* Supplementary Index.
8. Unclassified.

*Cross-References :*
Cosmic Rays, *see* Emission (Radiation).
Electrical and Magnetic Phenomena, *see* Terrestrial Electricity and Magnetism.
Visibility, *see also* Vision.

### Nebulæ. Page 895.

### Oscillations and Waves, Electric. Page 895.

1. Generation.
2. Amplification.
3. Rectification.
4. Measurement of Frequency.
5. Applications.
6. Wave Propagation :
    (*a*) General.
    (*b*) In Ionosphere.
7. Apparatus, *see* Supplementary Index.
8. Unclassified.

*Cross-References :*
Crystal Rectification, *see* Conduction (Electric) in Solids and Liquids.
Frequency, *see also* Alternating-current Networks.
Piezo-electric Oscillations, *see* Piezo-electricity.
*See also* Section B.—Electrical Engineering.

### Philosophy of Scientific Method. Page 897.

### Photochemistry (including Photography). Page 897.

1. General.
2. Photography :
    (*a*) Theory.
    (*b*) Development, Fixation, Reduction, Intensification, Toning.
    (*c*) Sensitivity and Properties of Emulsions.
    (*d*) Latent Image and Photographic Effects.
    (*e*) Cinematography and Colour Photography.

2. Photography (*contd.*) :
    (*f*) Applications. Industrial Reproduction.
    (*g*) Apparatus, *see* Supplementary Index.
    (*h*) Unclassified.

*Cross-References :*
Photographic Photometry, *see* Photometry.
Stellar Photography, *see* Stars.
X-ray Photography, *see* X-rays.

### Photo-electricity. Page 899.

1. General Theory.
2. Photo-electric Emission (Special Substances).
3. Photo-electric Cells, Properties of.
4. Photo-conductivity.
5. Becquerel Effect.
6. Applications.
7. Apparatus, *see* Supplementary Index.
8. Unclassified.

*Cross-Reference :*
Photo-electric Photometry, *see* Photometry.

### Photometry. Page 900.

1. Theory.
2. Visual Methods.
3. Physical Methods.
4. Standards, Units.
5. Apparatus, *see* Supplementary Index.
6. Unclassified.

*Cross-References :*
Colour Measurement, *see* Colorimetry.
Reflecting Power, *see* Reflection, Refraction and Dispersion.
Spectrophotometry, *see* Spectra.
Stellar Photometry, *see* Stars.
X-ray Photometry, *see* X-rays.

### Piezo-electricity. Page 901.

1. Statical Phenomena.
2. Piezo-electric Oscillations.
3. Pyro-electricity.
4. Apparatus, *see* Supplementary Index.
5. Unclassified.

*Cross-Reference :*
Piezo-electric Oscillations, *see also* Acoustics.

### Planets. Page 902.

1. General.
2. Major Planets.
3. Asteroids (Minor Planets).
4. Satellites (Moon, etc.).
5. Unclassified.

### Polarization (Radiation). Page 902.

1. Polarization by Reflection.
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6. A.C. Resistance. Skin Effect.
7. Effects of Temperature, Pressure and Mechanical Stress on Resistivity.
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10. Conductivity:
    - (*a*) Metals, Alloys and Non-Metals.
    - (*b*) Liquids (including Solutions).
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12. Unclassified.

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   (*d*) Projectors, (Lighthouses, Lanterns, etc.).
   (*e*) Lenses, Objectives, Prisms, Eyepieces.
7. Unclassified.

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